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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/699,455	10/31/2003	Kim B. Saulsbury	59057US002	2864
32692 7590 06/22/2007 3M INNOVATIVE PROPERTIES COMPANY PO BOX 33427 ST. PAUL, MN 55133-3427			EXAMINER ONEILL, KARIE AMBER	
			ART UNIT 1745	PAPER NUMBER
			NOTIFICATION DATE 06/22/2007	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Office Action Summary	Application No. 10/699,455	Applicant(s) SAULSBURY ET AL.	
	Examiner Karie O'Neill	Art Unit 1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 April 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 8-12 is/are pending in the application.
- 4a) Of the above claim(s) 17-67 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 8-12 is/are rejected.
- 7) ☒ Claim(s) 6 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>6-27-06, 12-5-06</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The Applicant's amendment filed on April 23, 2007, was received. Claim 1 was amended. Claims 7 and 13-16 have been cancelled. Claims 17-67 have been withdrawn from consideration. Therefore, Claims 1-6 and 8-12 are pending in this office action.

Claim Objections

2. Claim 6 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 6 does not further limit the amendments made in independent claim 1.

Appropriate corrections are required.

Claim Rejections - 35 USC § 102

3. The Claim rejections under 35 U.S.C. 102 (b), with regard to Claims 1-2, 6, 8-9 and 13-14 are withdrawn, because the independent Claim 1 has been amended.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-2, 6, and 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohara (EP 0981175 A2) in view of Sarkar et al. (US 6,936,367 B2).

With regard to Claim 1, Ohara discloses in Figure 3, a fuel cell current collection system comprising: a fuel cell stack comprising fuel cells comprising polymer electrolyte membranes (see abstract) stacked in a predetermined stacking direction or unit cells of a cell laminate (1) stacked in a laminating direction; and an end plate assembly disposed at one end of the fuel cell stack, the end plate assembly comprising: an end plate (5); and a pair of current collecting members (8) extending from current collectors (6) in the fuel cell stack and passing through the end plate via the insulating member (7) (paragraph 0032). Ohara does not disclose wherein the current collector comprises one or more pins.

Sarkar et al. disclose in Figure 6 and column 10 lines 12-24, the anode current collector being in the shape of a rod (32), which is electrically coupled to the anode tabs (30) and connectable to an external circuit to conduct the current collected from the tabs to the external circuit. By definition, a rod and pin are synonymous and are used to fasten, support or attach things. Therefore, at the time of the invention, it would have been obvious to one of ordinary skill in the art to use a current collector comprising one or more pins in the current collection system of Ohara, because Sarkar et al. teach the rod extending longitudinally from the fuel cell and having a plurality of electrically conductive filaments extending generally transversely from the rod and electrically and

mechanically coupled to the internal electrode and being connectable to an external circuit.

With regard to Claim 2, Ohara discloses the collecting member having a substantially longitudinal orientation with respect to the stacking direction, collecting members extending in the laminating direction of the cell laminate (paragraph 0032).

With regard to Claim 6, it can be seen in Figures 1 and 3, the collecting member (8) comprises one or more bolts.

With regard to Claims 8 and 9, Ohara discloses the end plate assembly further comprising a pair of metal current collecting plates (paragraph 0051) configured to electrically couple an active area of the fuel cell stack with the collecting member (paragraph 0032).

6. Claims 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohara (EP 0981175 A2) in view of Sarkar et al. (US 6,936,367 B2), as applied to Claims 1-2, 6 and 8-9, and in further view of Hatoh et al. (US 6,770,396 B2).

Ohara and Sarkar et al. disclose the fuel cell current collection system in paragraph 5 above, but do not disclose the end plate assembly comprising the end plate being formed of a non-metallic material, being formed of an electrically non-conductive material and being formed of a thermally insulating material.

Hatoh et al. disclose each of the pair of end plates being made of electrically insulting resin-dominant material comprising resin as a main ingredient, which may contain filler or reinforcing material such as glass fiber and ceramic powder in case of

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need (column 4 lines 27-33). Therefore, at the time of the invention it would have been obvious to one of ordinary skill in the art to use an end plate made of non-metallic, electrically non-conductive and thermally insulating material with the fuel cell system of Ohara and Sarkar et al., because Hato et al. teach the cost and weight of the fuel cell being very much reduced, and since the resin material is slower in its heat radiation than metal materials, it is superior in utilizing thermal energy (column 4 lines 34-44).

7. Claims 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohara (EP 0981175 A2) in view of Sarkar et al. (US 6,936,367 B2), as applied to Claims 1-2, 6 and 8-9, and in further view of Ernst et al. (US 5,945,232).

Ohara and Sarkar et al. disclose the fuel cell current collection system in paragraph 5 above, but do not disclose the end plate assembly comprising a current collecting plate configured to fit within a recess of the end plate, a current collecting plate configured to fit within a recess formed in a component of the fuel cell stack, and a flow field plate within the component of the fuel cell stack.

With regard to Claim 10, Ernst et al. disclose in Figure 4, end plates (302, 304) including recesses (306, 308), respectively, for receiving collector plates (310) disposed at each end of the sub-stacks (320). Therefore, at the time of the invention it would have been obvious to one of ordinary skill in the art to use end plates with recesses that are configured to hold collector plates with the fuel cell system of Ohara and Sarkar et al., because Ernst et al. teach a smaller overall stack size without sacrificing stack

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voltage and reducing stack costs by minimizing layers in the stack (column 2 lines 27-34).

With regard to Claim 11, Ernst et al. disclose in Figure 4, components of a fuel cell stack or end plates (302, 304) including recesses (306, 308), respectively, for receiving collector plates (310) disposed at each end of the sub-stacks (320).

Therefore, at the time of the invention it would have been obvious to one of ordinary skill in the art to use end plates with recesses that are configured to hold collector plates with the fuel cell system of Ohara and Sarkar et al., because Ernst et al. teach a smaller overall stack size without sacrificing stack voltage and reducing stack costs by minimizing layers in the stack (column 2 lines 27-34).

With regard to Claim 12, Ohara discloses wherein a component of the fuel cell stack comprises a flow field plate of the fuel cell stack, the component being an end plate of the fuel cell stack in which the flow paths of the gaseous fuel, the oxidant gas and the cooling water, which are fed to the cell laminate, are arranged (paragraph 0049).

Response to Arguments

8. Applicant's arguments, see pages 14-15, filed April 18, 2007, with respect to the rejection(s) of claim(s) 1, 2, 6, 8, 9, 13 and 14 under 35 USC § 102(b) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn.

However, upon further consideration, a new ground(s) of rejection is made in view of a new combination of references.

9. *Applicant's principal arguments are:*

(a) Ohara and Sarkar et al. are distinctly different technologies and are considered non-analogous art

In response to Applicant's arguments, please consider the following comments:

(a) Ohara relates to a polymer electrolyte fuel cell and Sarkar et al. concerns a solid oxide fuel cell. However, Sarkar et al. teaches in column 10, lines 13-24, an anode current collector rod being made of suitable materials which include stainless steel, superalloy and silver, which are electrically conductive and able to withstand solid oxide fuel cell operating conditions. Therefore, it is known that these same materials would be able to withstand the lower operating temperatures and conditions of a polymer electrolyte fuel cell, the current collector comprising one or more pins or rods being the main focus of the combination of references, not the type of fuel cell. A prior art reference is analogous if the reference is in the field of applicant's endeavor of, if not, the reference is reasonably pertinent to the particular problem with which the inventor was concerned. *In re Oetiker*, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992).

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karie O'Neill whose telephone number is (571) 272-8614. The examiner can normally be reached on Monday through Friday from 8am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Karie O'Neill
Examiner
Art Unit 1745

KAO



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PRIMARY EXAMINER